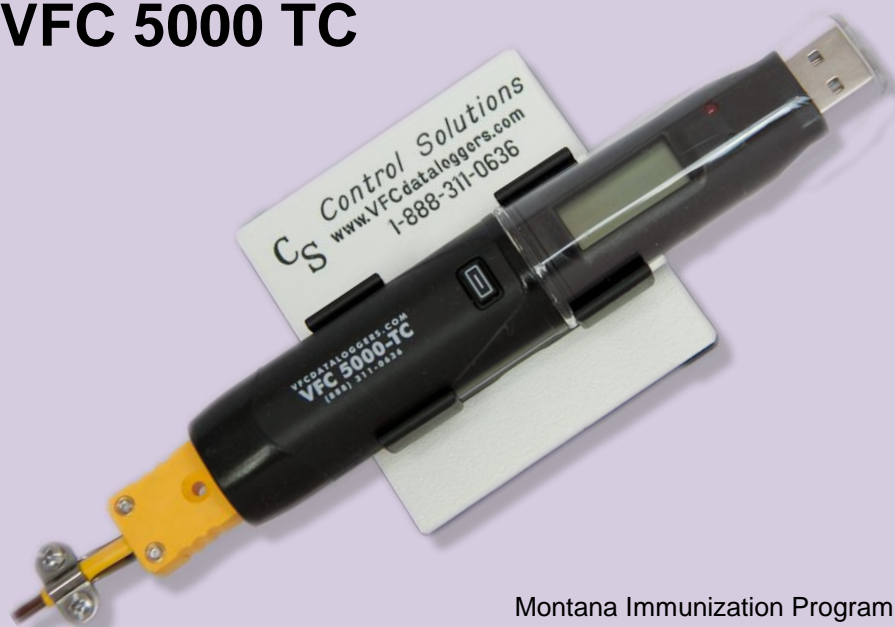


Immunization Program

Data Logger Instruction Manual Updated for the VFC 5000 TC

(Revised 3/2013)



Montana Immunization Program
Cogswell Building Room C-211
PO Box 202951
1400 Broadway
Helena, Montana 59620
406.444.5580
hhsiz@mt.gov

www.immunization.mt.gov

CONTENTS

1. Introduction.....	3
Data Logger Technical Assistance.....	3
Supporting Documents	3
2. Required Items	4
3. Loading Software.....	4
4. Thermocouple Installation.....	4
5. Data Logger Set-Up.....	5
6. Reading your Data Logger.....	7
7. Downloading, Saving, and Reviewing Data	8
8. Reviewing Previously Saved Data	10
9. Sending Data Logger Data to the Immunization Program	10
10. Data Logger Warranty and Calibration.....	11
11. Batteries	11
Battery Life	11
Low or Dead Battery Indications:	11
Changing the Battery:	11
12. LCD Display and LED Warning Lights	12

1. INTRODUCTION

The Montana Immunization Program requires Vaccines for Children (VFC) providers to have program-compliant thermometers in all VFC vaccine storage units and supplies VFC-5000 TC Data Loggers (Data Loggers) to fulfill this requirement (see VFC Provider Handbook Section 14 for thermometer requirements).

Data Loggers are electronic thermometers that continuously record and store temperature readings and indicate through a warning light when out-of-range temperatures have been recorded. Data Loggers interface with a computer so temperature data can be removed from the device and saved. The VFC 5000 TC operates through a glycol-buffered thermocouple probe and meets CDC recommendations on vaccine storage temperature monitoring.

Data Logger Technical Assistance

Written Documentation

- **Montana Immunization Program Data Logger Instruction Manual**—This is the document you are reading, which contains step-by-step instructions for using your Data Logger according to Montana Immunization Program requirements. Current versions are available on our website at www.immunization.mt.gov.
- **VFC-5000 TC Specifications**—Found on the Control Solutions website, this document details the specifications of the VFC 5000 TC including information for interpreting the LCD display and LED warning lights (<http://www.vfcdataloggers.com/5000tc.pdf>).
- **VFC-5000 TC Manual**—This can also be found on the Control Solution website (<http://www.vfcdataloggers.com/VFC5000TC%20MANUAL.PDF>) and is a comprehensive manual for general use of the VFC 5000 TC data logger. It describes all functions and parameters, not just those required by the Montana Immunization Program.

Telephone and Email Assistance

For technical support by phone or email contact the Montana Immunization Program at 444-5580 hhsiz@mt.gov or Control Solutions, our data logger supplier:



Supporting Documents

The VFC Provider Handbook, Temperature Logs, and Vaccine Incident Reports can be downloaded from our website at www.immunization.mt.gov under the VFC link.

2. REQUIRED ITEMS

- State-supplied Data Logger with acrylic cap, extra battery, thermocouple probe, glycol vial with acrylic stand, *Quick Start Guide*, certificate of calibration, and registration card for warranty and re-calibration notification.
- Windows-based computer with USB port
- Temperature Logs and Vaccine Incident Reports (available on our website at www.immunization.mt.gov under the VFC link)

3. LOADING SOFTWARE

- You must install EasyLog software version 6.3 in order to run the VFC 5000 TC. Previous versions will not work.
- Download EasyLog 6.3 from the Immunization Program website by going to www.immunization.mt.gov, clicking the VFC link, and scrolling down to "EasyLog Version 6.3 Download."
- The software is free. See the EasyLog Version 6.3 instruction card that came in the box with your Data Logger.
- You must install the software and the driver.
- You may need to contact your IT department to install the software.

EasyLog Software Version 6.3 is required:

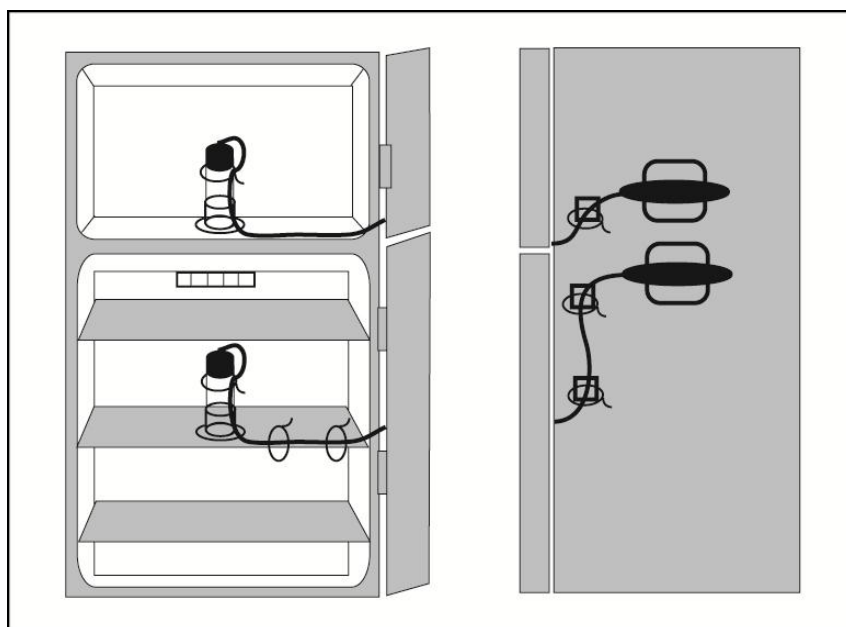
The software is free, but must be downloaded from the vendor website. You may need to contact your IT department to install the software.

To download EasyLog Version 6.3:

- Go to www.immunization.mt.gov
- Click the [Vaccines for Children](#) link.
- Scroll down to "EasyLog Version 6.3 Download." Click the link.
- Enter "Quantity: 1" and "Add to Cart"
- In upper right corner click "View Shopping Cart / Checkout."
- On the next screen click "Checkout" again.
- Enter registration information. Click "Next."
- On the Review Order screen, click "Place Order."
- The download link will appear on the next screen.
- Once the software is downloaded, click "run" and follow the screen prompts.
- You must install the software and the driver.

4. THERMOCOUPLE INSTALLATION

- Install the glycol-buffered thermocouple by following the diagram below:



Allow the glycol-buffered probe/vial to equilibrate in the storage unit for at least 2 hours before attaching the data logger.

- Place the glycol-buffered probe in the center of the chamber near vaccine but away from vents, coils, walls, and ceilings.
- Thread the thermocouple wire along the shelf and out the chamber on the hinge side of the door.
- Use the plastic ties and sticky squares to secure the wire. Tape may also be used.
- Attach the Data Logger cradle to the outside of the storage unit using the attached adhesive squares, making sure the thermocouple plug can reach the back of the Data Logger when it is in its cradle. Contact the Immunization Program if you need a longer wire.

5. DATA LOGGER SET-UP

Set up your Data Logger before first use and after downloading data by following the instructions below:

- Launch the Data Logger software by double clicking on the EasyLog USB icon on your desktop.

Remove the acrylic cap and insert the Data Logger into the USB port of your computer.

If you get this error message:



No EasyLog USB Data Logger found, is the Data Logger:

- Plugged in?
- Battery OK?
- USB driver installed?

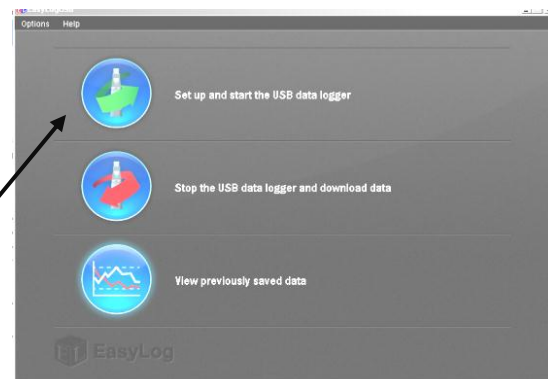
And your Data Logger has never been plugged in before:

- Try a different USB port
- Or reinstall the software and driver

If your Data Logger has been plugged in before with no error:

- Change the battery.

From the EasyLog USB main menu, click on the green arrow "Set up and start the USB Data Logger."



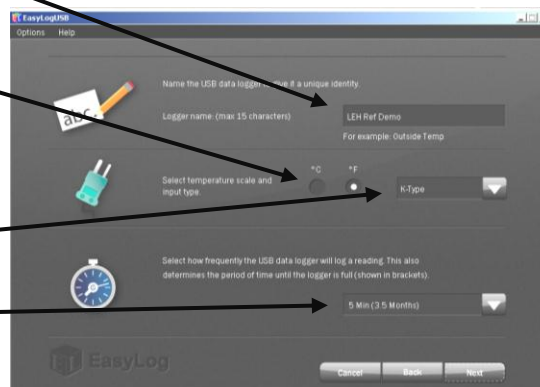
- Name your Data Logger. Differentiate your freezer and refrigerator devices in the name and by marking "R" or "F" on the outside of the device.

Set the device to read in Fahrenheit (F°). Obtain a paper temperature log from our website (www.immunization.mt.gov).

You can set your Data Logger to record in Celsius or Fahrenheit, but imMTrax will require temperatures to be in Fahrenheit.

Select K-type for input type.

Select a sample rate of "5 Min (3.5 months)." The sample rate is how often your Data Logger records the temperature. The number in parentheses is the number of months of data the device can store at that sample rate. Click "Next."



- On this screen, set the display function by selecting "LCD on for 30 seconds after button pressed." This setting will save battery power by inactivating the LCD display except when you press the button to read the temperature.

On the same screen, select the "Logger stops (recommended)" setting to prevent data from being overwritten if the device memory is full. Click "Next."

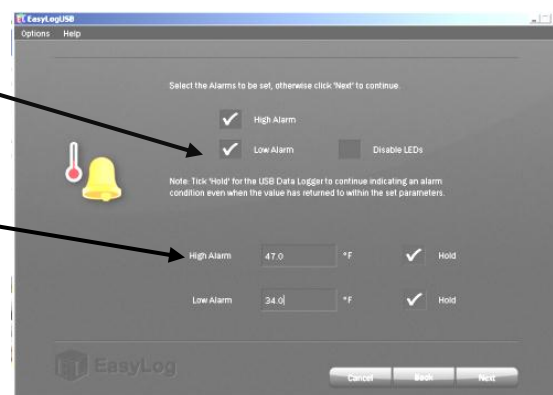


- On the next screen, set your high and low alarm points by first checking the boxes. Leave the “Disable LEDs” unchecked.

- Then set the temperature for each alarm point as follows:

Refrigerator:	Fahrenheit	High 47°	Low 34°
	Celsius	High 8.5°	Low 1.5°
Freezer:	Fahrenheit	High 6°	Low -31°
	Celsius	High -14.5°	Low -35°

The out-of-range alarm points are 1 degree (F) and 0.5 degree (C) outside the recommended storage temperatures for vaccines.



Check “Hold” for each alarm point. Click “Next.”

- On this screen, set the Alarm Delay, which is the number of consecutive out-of-range readings that must be logged before the red out-of-range warning light is activated.

Refrigerators: Set the low and high delay at 3 (15 minutes).

Freezers: Set the low delay to 3 (15 minutes).

High delays can range from 3 (15 minutes) to 12 (1 hour). We recommend starting with 7 (30 minutes), and then adjusting based on Immunization Program guidance after we review your data. Record current freezer high alarm delay setting below:

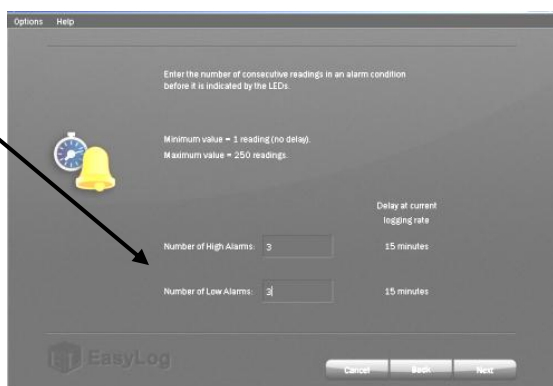
High Alarm Delay _____ Date _____

High Alarm Delay _____ Date _____

High Alarm Delay _____ Date _____

High Alarm Delay _____ Date _____

Always contact the Immunization Program before adjusting alarm delays outside recommended values.

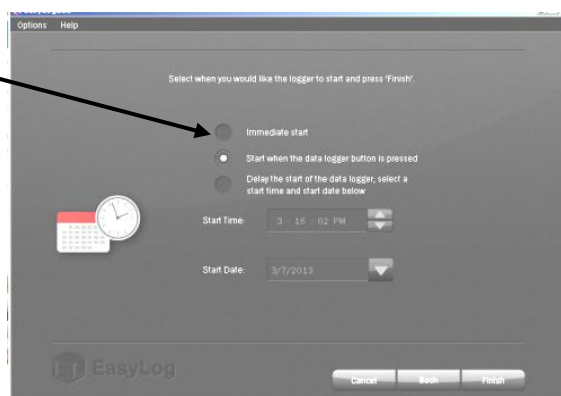


- On the final screen, set the start mode for your Data Logger by selecting “Start when the Data Logger button is pushed.”

Click “Finish” and then “OK.” Your Data Logger is now ready for use.

The LCD display should flash **P5**


DO NOT push the start button before attaching the thermocouple wire to the device. Doing so will cause it to start recording and measure out-of-range room temperatures until the wire is attached.



- Remove the Data Logger from your computer, replace the acrylic cap, and clip it into the cradle attached to the outside of your storage unit so the LCD is facing out.

Attach the thermocouple wire to the end of the Data Logger making sure to align the +/- poles.

Push the Data Logger button to start the device. It should flash "log" and then the current temperature.

If the LCD displays  the device has not been properly activated. Return to Section 5 and start over.



6. READING YOUR DATA LOGGER

Data Logger temperatures (LCD display) and warning lights (LEDs) must be checked and recorded on an Immunization Program paper temperature log every day your clinic is open. You must log current temperatures twice daily (morning and evening), and minimum and maximum temperatures each morning.

- To check temperatures, press the button on the side of the Data Logger.

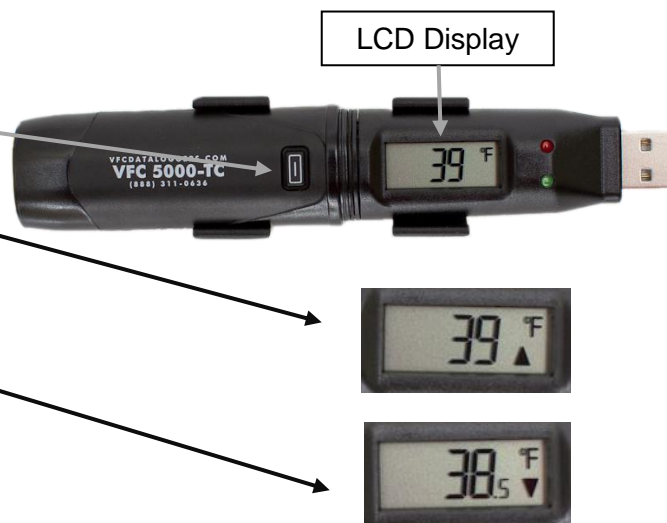
First Press: Current temperature

Second Press (within 30 seconds of previous press): Maximum recorded temperature (▲) since last download.

Third Press (within 30 seconds of previous press): Minimum temperature (▼) recorded since last download

Fourth Press (within 30 seconds of previous press): Returns to current temperature

The display will go blank 30 seconds after the last button push.



- After logging the temperature, check the status of the LED lights. (You may have to wait 10–30 seconds for the lights to blink.)

If the light blinks green, place a Y in the appropriate place on the temperature log.

If the light takes longer than 10 seconds to flash, refer to Table 2 in Section 12 for further guidance.

If the light blinks red, out-of-range temperatures have been recorded continuously beyond your alarm delay setting. Immediately download and review the Data Logger data by following the instructions in Section 7. For more information on LEDs, refer to Table 2 in Section 12.

- Recording Information on Temperature Logs:

You must use Immunization Program-supplied temperature logs (www.immunization.mt.gov) and record:

- Time of day
- Initials of staff recording temperatures
- Whether the LED is green (Y or N)
- AM:** Record current temperature with an X and minimum and maximum temperatures each with an M.
- PM:** Record current temperature with an X.

VFC Providers must enter and submit their twice-daily current temperature readings in imMTrax prior to reconciling inventory and placing vaccine orders.



Day of Month	1	2
Time of Day	am pm	am pm
Staff Initials	9 5	9 5
LED Green	Y Y	Y Y
≥49°		
48°		DO NOT U
47°		
46°		
45°		
44°		
43°	M	M
42°		X X X
41°	X	
40°	M	M
39°		
38°		

7. DOWNLOADING, SAVING, AND REVIEWING DATA

Data Logger data must be downloaded, reviewed, and saved at **least once per month** or whenever out-of-range temperatures are recorded or the LED warning light blinks red.

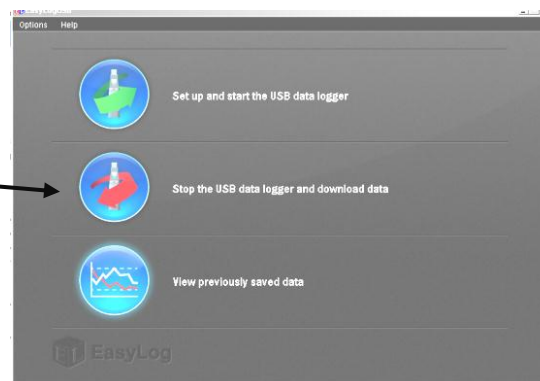
- Launch the Data Logger software by double clicking on the EasyLog USB icon on your desktop.

Connect your Data Logger to a USB port on your computer.

Click on the red arrow icon “Stop the USB Data Logger and download data.”

Answer “Yes” on the pop-up window. On the next screen, click “OK.”

If your battery is low, you may get a low battery warning when you plug the Data Logger into your computer. Replace the battery if this occurs (see Section 11).



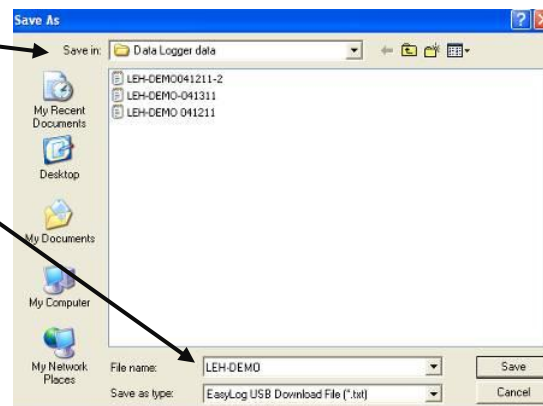
- On the next screen, choose where you will store your data.

Give the current file a unique name. The name field will automatically fill with the device name you designated in Section 5. We recommend adding the date to make it unique.

(Example: "VFC Refrigerator 04-12-2011")

If you do not give the data file a *unique* name, you will overwrite any previously downloaded files with the same name.

Click "Save." The file will be saved in the location specified.

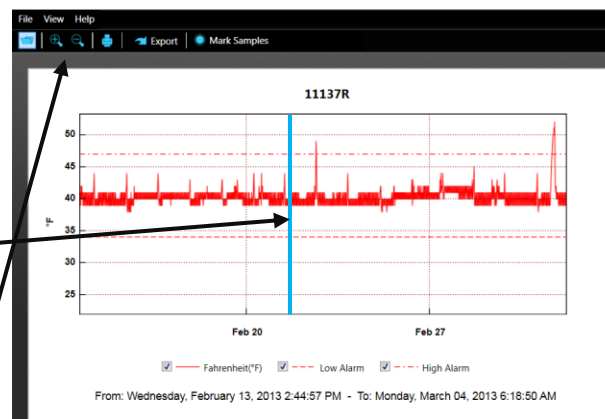


- After saving the data file, a graph will launch that displays temperature recordings plotted over time (solid red "trace") and dotted lines indicating the high and low alarm settings.

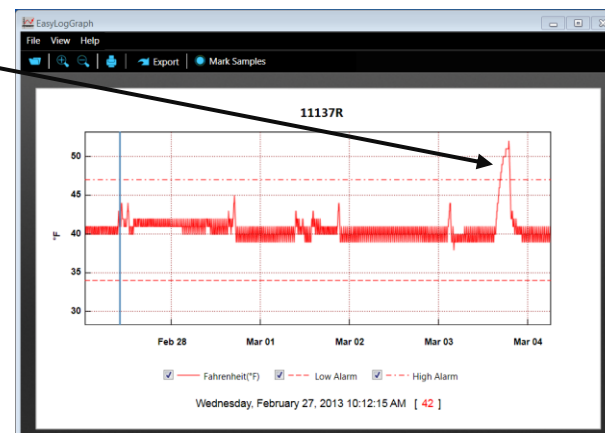
Other useful tools when looking at data:

The Scrubber: Drag this line over the trace with your mouse and get exact time and temperature data for each point at the bottom.

Magnifying Glasses: Click the + glass and draw a box on the graph to zoom in. Click the – glass to zoom out.

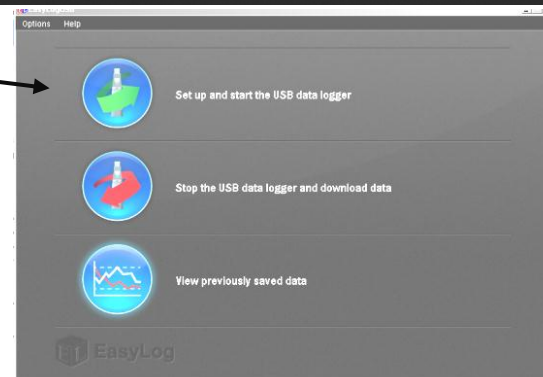


- Review the temperature data. If temperatures are out of range beyond your alarm delay settings, immediately obtain a Vaccine Incident Report (www.immunization.mt.gov) and follow the instructions. Also contact the Immunization Program (444-5580 hhsiz@mt.gov).



- After saving and reviewing the data, close the graph by clicking on the X in the upper-right corner. This returns you to the EasyLog USB main menu.

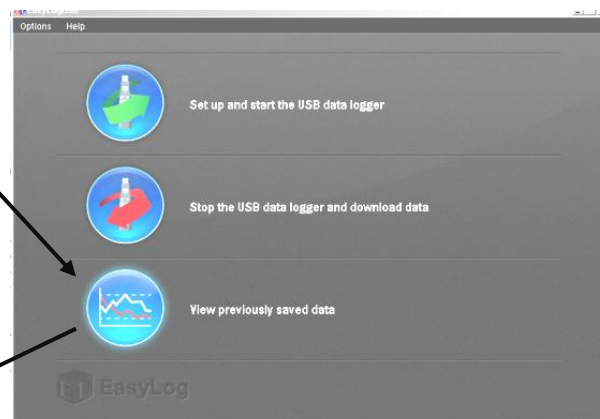
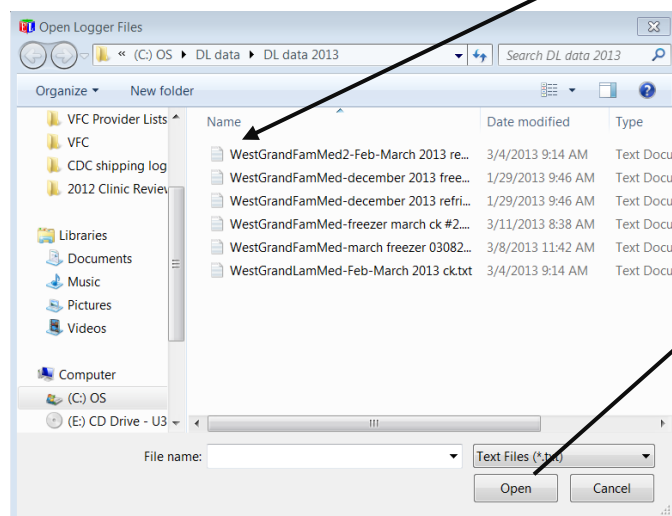
- Reset the Data Logger and return it to the storage unit by following the instructions under "Data Logger Setup" in Section 5.



8. REVIEWING PREVIOUSLY SAVED DATA

- To review previously saved data, launch the EasyLog USB software and click on the graph icon “View previously saved data.”

This will take you to the folder containing your saved data. Select a file and click “Open.” The graph will launch.

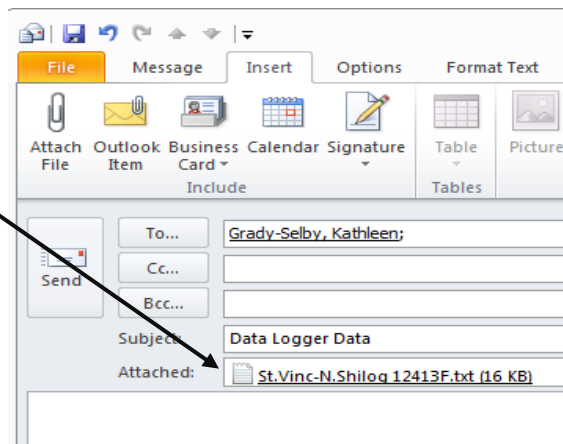


9. SENDING DATA LOGGER DATA TO THE IMMUNIZATION PROGRAM

Providers are not required to send Data Logger data to the Immunization Program on a regular basis. However, you will need to send data to have your storage units approved, when investigating temperature excursions, and whenever you need help interpreting your data.

- The best way to send Data Logger data to the Immunization Program is by email: Simply attach the Data Logger file (file extension .txt) to an email and send to hhsiz@mt.gov.
- By fax: Data Logger graphs can be printed and faxed (442-4848). Be sure to use the magnifying glass to zoom in on areas of interest before printing.

A faxed graph may be sufficient for a preliminary view of the data, but we require the actual Data Logger file when approving your storage units and investigating temperature issues.



10. DATA LOGGER WARRANTY AND CALIBRATION

Unless otherwise instructed, VFC Providers are responsible for re-calibrating their State-supplied Data Loggers every other year and replacing broken devices with equivalent units (See *Montana Immunization Program VFC Provider Handbook/Vaccine Management Plan* Section 14). Providers can use a vendor of their choice for re-calibration and replacement.

Control Solutions, our Data Logger supplier, offers a warranty and re-calibration notification program. For more information on this program, please refer to the white card titled "Data Logger Warranty & Calibration Registration" that came in the box with your Data Logger.

11. BATTERIES

State-supplied Data Loggers come with a fresh battery installed and one extra battery in the cardboard box. Additional batteries can be obtained by contacting the Immunization Program (444-5580 hhsiz@mt.gov).

Battery Life

For Data Loggers programmed according to Immunization Program recommendations, new batteries should last approximately one year.

Circumstances that may affect battery life:

- Leaving the device plugged into a computer USB drive for an extended period of time
- Programming the LCD to display continuously (Section 5, page 5 – not recommended)
- Programming the Data Logger at a higher-than-recommended sampling rate (Section 5, page 5 – 5 minutes recommended)

Low or Dead Battery Indications:

- Single green or red light blinking at 20 second intervals (in contrast to the normal 10 second intervals – see table in Section 12)
- No LCD display or LED warning lights
- Low battery pop-up warning when you plug the Data Logger into the computer.

Changing the Battery:

- Use a sharp point to press the silver tab on the back side of the Data Logger directly behind the LCD display.
- Slide the lower plastic sleeve off the unit.
- Remove the battery and replace with a new one making sure that the poles (+ -) are properly oriented.
- Replace the plastic sleeve.



12. LCD DISPLAY AND LED WARNING LIGHTS

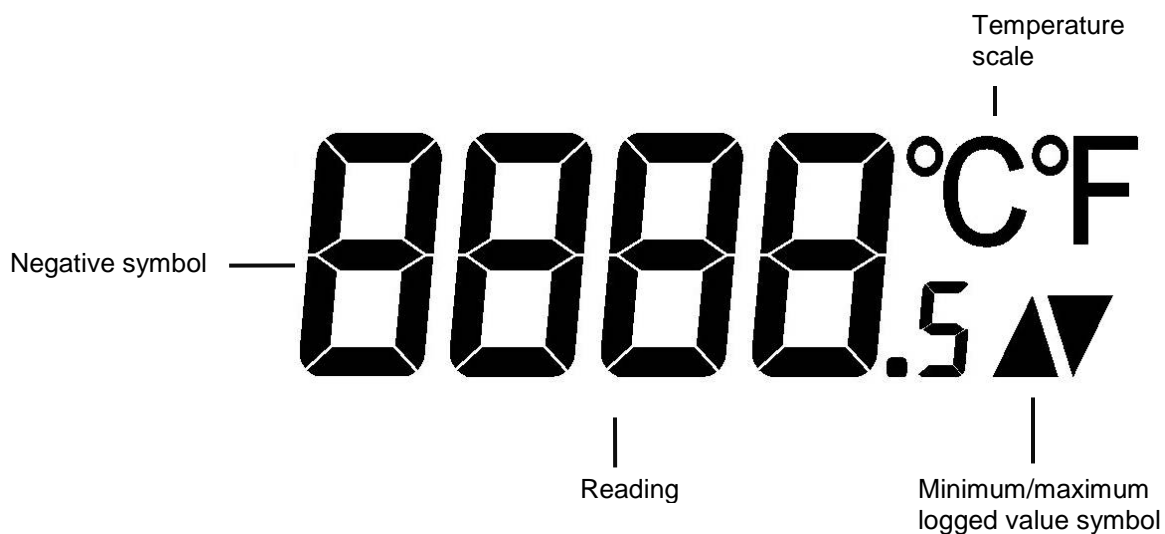












Figure 1 VFC 5000-TC LCD Display

Table 1 LCD Status Displays and Explanations

LCD Display	Logger Status	Explanation
d5	Delayed Start	This is shown when the logger is set to start at a specific date and time.* (Recommended)
P5	Push to Start	This is shown when the logger is set up for "Push to start" logging
109	Logging	This is shown when the logger is running in "LCD off" mode, and the button is pressed. The display clears again after three seconds
---	Stopped	If the logger has not been set to log and the button is pressed, three dashes are displayed for three seconds. (Forgot to reset after download).

* If the logger is set to "LCD off" or "LCD on for 30 seconds" mode, then this will only be shown after the button is pressed. Otherwise the display will remain blank.

Table 2 LED Warning Light Explanations

LED Warning Light Status	Explanation
	Green single flash (10 seconds) The data logger is currently logging. No alarm.
	Green single flash (20 seconds) The data logger is currently logging. No alarm. However, the battery is low and should be replaced before logging important data.
	Green single flash (30 seconds) The data logger is not currently logging, but is primed to start at a later date and time (delayed start).
	Green double flash (20 seconds) The data logger is full and has stopped logging. No alarm.
	Red single flash (10 seconds) The data logger is currently logging. Low alarm.
	Red single flash (20 seconds) The data logger is currently logging. Low alarm. However, the battery is low and should be replaced before logging important data.
	Red double flash (10 seconds) The data logger is currently logging. High alarm.
	Red double flash (20 seconds) The data logger is currently logging. High alarm. However, the battery is low and should be replaced before logging important data.
	Red/Green single flash (20 seconds) The data logger is full and has stopped logging. Alarm (high, low or both).
	No LEDs flash The data logger is stopped, the battery is empty or there is no battery fitted.